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# Five-Year Review of the Forest Management Undertaking Agreement with The Algonquin Forestry Authority (1985-1990)

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Ontario

Ministry of  
Natural  
Resources



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# 1. INTRODUCTION

## 1.1 BACKGROUND TO REVIEW

Algonquin Provincial Park is unique in that its location makes it readily accessible to large segments of urban Ontario residents. (Figure 1 illustrates this.) As early as 1878 the Ontario Department of Crown Lands recognized that it would be important to preserve this area in the heart of the province for recreational use. In 1892 a Royal Commission recommended that a park be created in this area and in 1893 the "Algonquin National Park Act" was passed by the Legislative Assembly of the Province of Ontario. The purpose of forming the Park was to preserve the headwaters of key watersheds in the province, to preserve the native forest, to protect fish, birds, game and furbearing animals, to provide an area for forestry and other natural science experimentation, and to provide a recreational area for the enjoyment of the people of Ontario. Initially, the Provincial Park comprised eighteen townships covering an area of 379,987 hectares. Over the years, several additions to the Provincial Park landbase have increased its size to 768,451 hectares.

Algonquin Provincial Park is the key source of wood in central Ontario. Between 1985 and 1990, it produced an average of 413,000 m<sup>3</sup> of wood per year. This included an average of 75,000 m<sup>3</sup> of red and white pine sawlogs, 95,000 m<sup>3</sup> of hardwood sawlogs, 160,000 m<sup>3</sup> of pulpwood, and 6,500 m<sup>3</sup> of valuable hardwood veneer. Other products include wood for poles and match splints. In total, Algonquin Provincial Park produces some 40% of all wood harvested in the Algonquin region and contains some of the best white pine sites in the province. It supplies wood to 11 major sawmills, two veneer mills, a pole plant, and a pulp mill. These mills are located in communities surrounding the Park; one is in Quebec.

A Park Master Plan was written in 1974, establishing policy and objectives for all land use within the Park. The plan outlined a system of zoning to balance acceptable uses. Natural, historic and primitive zones were established to preserve key ecological, archaeological and landscape features in the Park. Access zones were designed to disperse entry to the Park and recreation/utilization zones were established with the goal of facilitating high quality, low intensity recreation use in conjunction with forest harvesting and management. Within the recreation/utilization zones there is a further segmentation into recreation reserves where no harvest operations are permitted, special areas managed for winter deer yards as well as timber production, and combined recreation/harvesting areas. The Master Plan was recently reviewed and the review recommendations are the basis for a revised Master Plan to be written in 1992.

The Algonquin Forestry Authority (A.F.A.) was formed in 1975. It is a Crown Corporation responsible for harvesting timber in the Park and supplying it to manufacturing facilities. The A.F.A.'s central objective is to provide a continuous supply of timber to the forest industry of the region while practising environmentally sound forest management consistent with other Park uses and values. The A.F.A. is the sole timber licensee in the Park, although it does enter into third-party license arrangements with other firms. The Authority is also responsible for carrying out the majority of road construction and silvicultural activities within the Park.

## REGIONAL SETTING

# ALGONQUIN PARK DISTRICT ALGONQUIN REGION

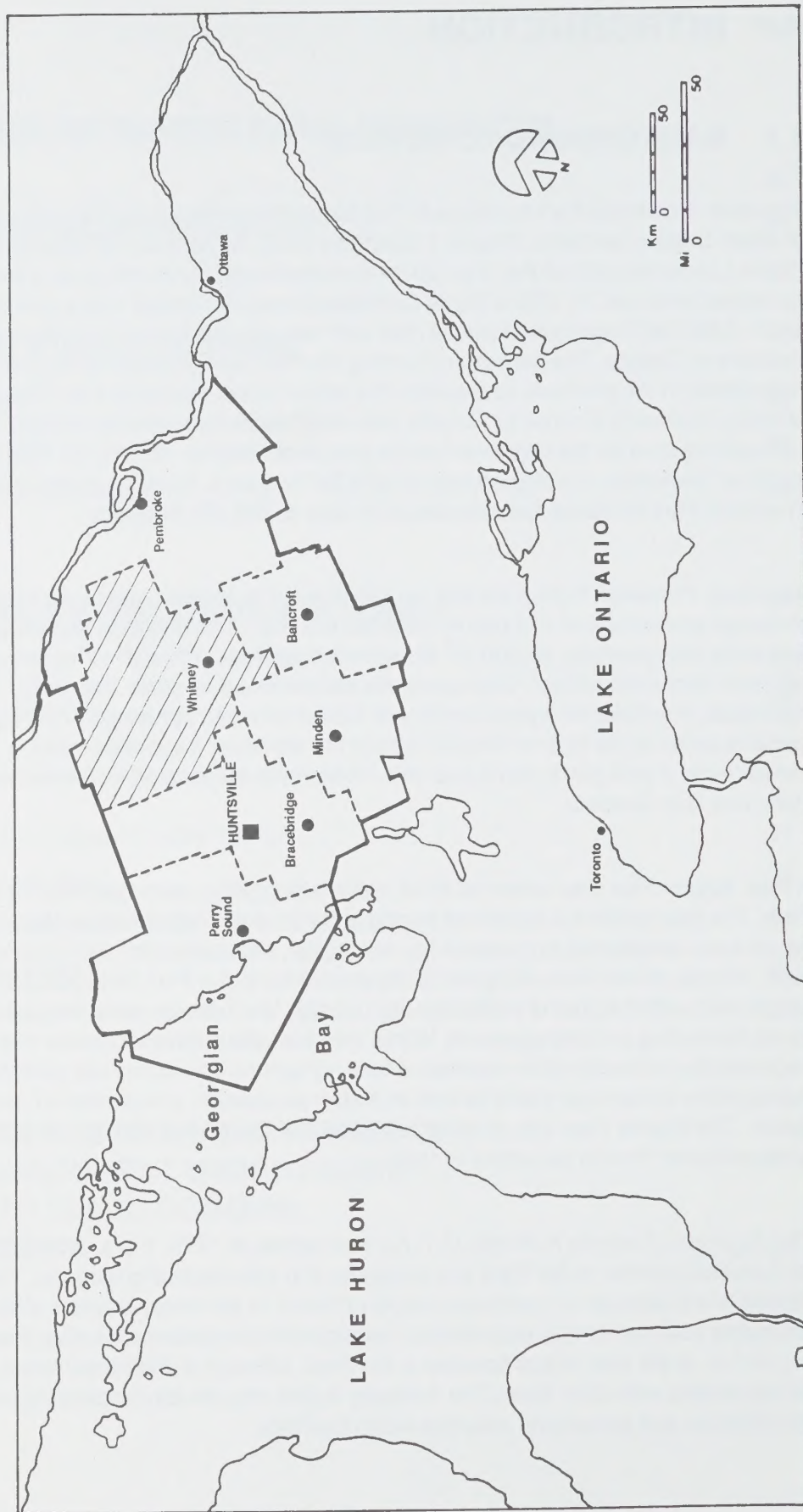
■ REGIONAL OFFICE

● DISTRICT OFFICE

— REGION BOUNDARY

- - - - DISTRICT BOUNDARY

▨ DISTRICT PLANNING AREA



On June 21, 1985 the Minister of Natural Resources and the Algonquin Forestry Authority signed a Forest Management Undertaking (FMU) Agreement to provide for the harvest of forest products and renewal of timber on a sustained yield basis within Algonquin Provincial Park. The Agreement was negotiated under the general terms of the Algonquin Forestry Authority Act and the Memorandum of Understanding signed by the Minister and the A.F.A., and amended on January 15, 1990. The FMU defines the Authority's obligations for timber harvest, timber management plan preparation, implementation of silvicultural operations, road maintenance, wood measurement, and preparation of reports. The funding arrangements for these activities are also set forth (See section 2.5).

The FMU was designed to contribute to the broad forest management and land use objectives outlined by the Ministry of Natural Resources (MNR) and the objectives of the Algonquin Forestry Authority as defined in the Algonquin Park Master Plan.<sup>1</sup> Accordingly, the objective of the FMU Agreement is:

"...to provide for the continuous supply of forest products from the Recreation Utilization Zone of Algonquin Park, and to ensure that the forests on such lands are harvested and regenerated to produce successive crops of timber on a sustained yield basis." (FMU Agreement)

## 1.2 PURPOSE OF THIS REVIEW

This review of the first five years of the FMU Agreement has three purposes:

- i) to determine whether the obligations of the A.F.A. under the management documents, as defined under the FMU, have been satisfactorily performed;
- ii) to evaluate and document the effectiveness of the Agreement in contributing to the objectives of the Authority and the Ministry; and
- iii) to recommend to the Minister action required by either the Authority to meet the Agreement obligations where performance has not been satisfactory or the Ministry to improve or maintain the effectiveness of the Agreement.

## 1.3 THE REVIEW COMMITTEE

The review was conducted during the summer of 1991 by the following four-person team:

- **James F.S. Bendell**, Ph.D., Professor Emeritus, Faculty of Forestry, University of Toronto, responsible for matters pertaining to biology and non-timber uses;

<sup>1</sup> The 1974 Park Master Plan established policy and objectives for all land use within the Park. The Master Plan was recently reviewed and the review recommendations are the basis for a revised Master Plan.

- **Robert H. Keen**, R.P.F., private forestry consultant and President of FORMAC, a division of Keen Forestry Ltd., responsible for forestry inspections and evaluations;
- **Fern Miller**, Ph.D., private economic and policy consultant, partner in MW Resource Analysts, responsible for financial records inspection, interviews, and analysis;
- **Jeremy S. Williams**, Ph.D., R.P.F., private resource economics and forest management consultant, partner in MW Resource Analysts, responsible for co-ordination, analysis, and report quality control.

## 1.4 TASKS OF THE REVIEW COMMITTEE

The review committee's assignment was to undertake a fair and objective review of the performance of the Algonquin Forestry Authority during the first five years of the FMU (i.e. the Algonquin Forestry Authority's programme commitments) and to recommend to the Minister of Natural Resources whether, and in what form, to extend the FMU Agreement.

The review was conducted by:

- examining the management, operating and annual plans prepared under the management planning process and relating to the obligations under the Agreement;
- reviewing the financial records of the A.F.A. for the FMU Agreement programmes and assessing their adequacy;
- assessing the appropriateness of funding levels and mechanisms to meet the programme obligations undertaken under the Agreement;
- inspecting the silvicultural and road maintenance records for adequacy, consistency, and conformity with the management plans and the ground rules of the Agreement;
- selecting and inspecting field sites representative of the operations conducted under the Agreement;
- determining the degree to which other forest users and other forest values were accommodated in management planning and in field operations;
- meeting with A.F.A. and Ministry staff to determine how the Agreement is working; and
- meeting with industry and recreational users of Algonquin Park to assess how the Agreement programmes affected their activities.

## 2. PROCEDURES AND FINDINGS

### 2.1 MANAGEMENT PLANNING

#### 2.1.1 PREPARATION AND SUBMISSION OF PLANS

Paragraphs 11 and 15 of the FMU Agreement require the A.F.A. and MNR to manage in accordance with the 1980-2000 Forest Management Plan for the Algonquin Park Management Unit and the 1985-1990 Operating Plan. An FMU reporting schedule was established in 1985 in accordance with the then-current protocol. During the review period, a new Timber Management Planning (TMP) process was approved. Some of the new TMP reporting and presentation requirements were brought on-stream in the annual work schedules and annual reports.

**Table 1** summarizes both sets of reporting requirements, which are fulfilled by the A.F.A. A.F.A. and MNR regional staff agreed that many of the FMU reports were no longer needed but that the February 15th fourteen month advance estimate of funding requirements for the FMU should be retained.

**Table 1. Summary of TMP and FMU Annual Reporting Requirements**

DATE	TMP	FMU
January 15		Expenditure and work targets April 1-Dec. 30 and year end forecast.
January 31	Annual Work Schedule	
February 15		Estimate of funds req'd and work targets due 14 months prior to fiscal year being planned.
April 10	Annual Report 1) Table 6.4.1, R & M 2) Table 6.5, Tree Imp 3) Table 6.6, Access 4) Table 6.7.1, FTG	
April 15		Expenditures (unaudited) and work targets accomplished for previous year.
May 15		Expenditure and work targets accomplished for previous year. Forecast of expenditures and work targets for fiscal year.
October 15		Expenditures and work targets April 1 -Sept.30 and year end forecast.
November 15	Annual Report Documentation as per TMP Manual.	

Abbreviations: R & M - Renewal and Maintenance  
Tree Imp - Tree Improvement  
FTG - Free to Grow

(Source: Algonquin Forestry Authority)

The 1985-1990 Operating Plan and Annual Work Plans prepared throughout the review period were complete and of a high standard. The A.F.A. has been conscientious about preparing the required plans and reports on time. Interviews with MNR staff indicated that MNR was pleased with the A.F.A. planning and management plan reporting performance.

**RECOMMENDATION 1:** That the MNR and A.F.A. eliminate unnecessary management plan reporting by using the Timber Management Plan reporting process exclusively, with the retention of the February 15th advance budgeting estimate.

## **2.1.2 PLAN IMPLEMENTATION**

Although the FMU does not spell out reporting relationships, the 1980-2000 Forest Management Plan for the Algonquin Park Management Unit specifies that "the day-to-day relationship with the Ministry is with the Ministry's Algonquin Park Office at Whitney." And further it notes that, "The General Manager of A.F.A. reports to the Board of Directors of the A.F.A. whose Chairman reports to the Minister of Natural Resources." (1980 Forest Management Plan..., p.3)

A 1988 Memorandum of Understanding signed by the Minister and the A.F.A. Chairman states that, "All dealings between the Authority and the Ministry shall be coordinated through the Regional Director, Algonquin."

These directions are inconsistent. Interviews revealed that there was some confusion and disagreement over the role and authority of the MNR Algonquin District office in the supervision of the A.F.A.'s performance under the FMU Agreement. There was disagreement between the A.F.A. and the District over whether the District had the authority to compel the A.F.A. to undertake certain measures and under what circumstances the A.F.A. should be liaising with other levels of the Ministry.

However, these administrative issues did not prevent A.F.A. and MNR field staff from forming a cooperative working relationship in the field. Both MNR and A.F.A. field staff commented on the excellent working relationship.

**RECOMMENDATION 2:** That the role and authority of the MNR administrative levels and monitoring, implementation, and reporting relationships be clearly identified in the FMU.

## **2.2 THE GROUND RULES**

### **2.2.1 KNOWLEDGE AND FAMILIARITY WITH THE GROUND RULES OF THE AGREEMENT**

During the field inspections and interviews, the reviewers discussed many aspects of the silvicultural ground rules with A.F.A. staff. The review team did not find any instance where a lack of knowledge of the ground rules was evident.

### **2.2.2 CONFORMITY OF HARVEST AND SILVICULTURAL OPERATIONS WITH THE GROUND RULES**

Through extensive field visits and discussion with A.F.A. and MNR staff, the reviewers concluded that A.F.A. harvest and silvicultural activities conformed to the ground rules.

### **2.2.3 CONFORMITY OF INVOICING AND OTHER AREAS**

The A.F.A.'s invoicing procedures conformed to the requirements under FMU paragraph 31, section 3. No concerns were raised over invoicing or reimbursement.

### **2.2.4 PREPARATION OF NEW GROUND RULES**

Despite the fact that the five-year review of the FMU had not been undertaken, the A.F.A. and MNR worked on schedule to prepare ground rules for the 1990-95 TMP. These new silvicultural ground rules are now being followed.

## **2.3 HARVEST LEVELS, MAXIMUM ALLOWABLE DEPLETION, AND WOOD FLOW**

One of the objectives of forest management is to produce and maintain a wood supply which provides for an optimum continuous contribution to the economy by the wood-utilizing industry. To manage forests on a sustainable basis, there must be a long-term balance between the amount of wood harvested and the amount of wood that is grown to replace it. There are two basic forest management systems: even-aged management and uneven-aged management. Under each type of system the methods of harvest and regeneration differ.

Under uneven-aged management, trees are maintained across a range of sizes and ages in each stand. Harvesting occurs by selection where individual trees are marked and removed. Regeneration occurs naturally as seeds germinate and grow and growth is accelerated as the canopy cover is thinned through the selection harvest. This system can only be maintained for tolerant species such as sugar maple and beech which can germinate and grow under shade cover.

Under even-aged management, the trees in each stand are roughly the same age. Stands are harvested either as a whole or in stages. When the entire stand is removed in one pass, this is called a clear-cut. If the stand is removed in stages, one of two systems is used: the seed tree system where scattered trees are left as seed sources and harvested some 10 to 20 years after the main harvest, or the uniform shelterwood system where portions of the stand are removed in three or more stages at intervals ranging from 10 to 20 years. Even-aged management based on clear-cuts is applied when the desired species are intolerant of shade. Moderately shade tolerant species such as red and white pine can be successfully managed using the seed tree and shelterwood systems.

In Algonquin Park, many tolerant hardwood stands have been degraded by past high-grading. The trees that remain have a high proportion of defects and are poor in timber quality. In severely degraded stands, there may be so few high-quality trees that the selection system cannot attain sufficient quality within a reasonable time period (i.e. 20-40 years). In such cases, the shelterwood system is sometimes preferred because the initial cut removes more trees and opens the stand, thereby promoting regeneration.

Whichever management system is chosen, a calculation must be made of the amount of timber that can be removed in any one period while ensuring a sustainable yield. In Ontario, this calculation is known as the Maximum Allowable Depletion (MAD), a measure which represents the theoretical maximum amount of timber that may be harvested when other likely losses (e.g. insects, disease, and withdrawals for non-industrial uses) are taken into account. This amount can be expressed as either an area or a volume. In Ontario, the MAD is expressed as an area. Where partial cuts such as the uniform shelterwood system are used, a larger harvest area is needed to yield similar volumes.

In the planning process, the theoretical maximum is used in conjunction with estimates of industrial needs to determine the planned level of harvesting (planned depletion) by forest working group. The term working group refers to the dominant species in the stand. The planning process then tracks the actual depletions that occur. Table 2 shows the five-year MADs, planned depletions, and actual depletions for Algonquin Provincial Park in the 1985-1990 period.

**Table 2. 1985-90 Allowable, Planned, and Actual Depletions**

Working Group	Allowable Depletion (ha)	Planned Depletion (ha)	Actual Depletion (ha)
Hard Maple	60,583	48,906	43,011
Yellow Birch		5,613	4,530
Other Hardwood		2,924	2,255
Hemlock	1,151	1,630	3,010
White Pine	7,925	7,253	5,845
Red Pine	384	1,318	1,129
Jack Pine	334	119	62
Black Spruce	1,293	1,636	1,191
Balsam Fir	2,395	2,688	2,554
Other Conifer	0	596	516
Poplar	11,808	14,127	8,882
White Birch	3,645	3,527	2,324
<b>TOTAL</b>		<b>90,337</b>	<b>75,309</b>

(Source: 1990-2010 Timber Management Plan for Algonquin Park)

## Depletion Calculations

The A.F.A. states that it pursues a conservative strategy when calculating the allowable areas and volumes for harvest. The one instance where conservatism was evident was in the relatively long rotations chosen for the white pine working group. The 1980-2000 Forest Management Plan permitted the rotation to be shortened in future if such a measure is supported by data from regeneration and residual growth and yield surveys.

In addition, the A.F.A. calculated the planned depletion based on the unaccelerated allowable depletion for the pine and hemlock working groups. (The harvest may be increased, or accelerated, where a working group has an overabundance of stands in the older age classes.) Although the hemlock working group is characterized by a preponderance of older aged stands, the 1980-2000 Forest Management Plan did not propose an acceleration of the hemlock harvest. This recognized the important role that hemlock plays in providing winter shelter for wildlife, especially wintering yards for deer where the snow accumulation is relatively shallow.

An acceleration factor was applied to the spruce, balsam fir, poplar, and white birch forest units. In balsam fir and spruce, this was done to improve the age class structure and help salvage areas damaged by spruce budworm. The poplar and white birch cut was accelerated to reduce excess area in the 80+ year age classes and to provide opportunities for other species to come in on these sites.

The review committee shared the general consensus among Ministry and A.F.A. personnel that these approaches toward depletion calculations were appropriate.

## **Planned Harvests**

The five-year allowable depletions set forth the general allowable harvest areas. It is the role of the five-year operating plans to revise these calculations as changes occur in the land base and forest conditions and to formulate planned harvest levels.

The Operating Plan for the 1985-1990 period noted that some changes were made in the allowable cut calculations to incorporate variance from the original calculations that occurred from 1980 to 1985 and an adjustment for a large blowdown that happened on the east side of the Park in 1983.

In addition the Operating Plan set out some harvesting strategies that varied from the original "allowable" levels. In particular there was a proposed "over-allocation" in the hemlock, red pine and poplar working groups. For hemlock the reason given for a heavier planned cut was that, "many of the hemlock working group areas, although typed hemlock have a predominantly tolerant hardwood component and should be managed for tolerant hardwoods." An exception was called for where pure patches of hemlock greater than .04 hectares occurred in tolerant hardwood areas. These areas were to be managed for hemlock.

An allocation greater than the original calculation was set out for red pine because it was noted that many of the red pine stands had a high white pine component. The decision to manage some sites for white pine under a uniform shelterwood system resulted in a larger allowable area base than under the group seed tree system.

Some poplar sites were also found to have a high pine component and a decision was made to harvest with uniform shelterwood rather than clearcut. Hence, plans called for a higher harvest area than in the original calculation.

## Planned versus Actual Harvest Areas

Some of the allowable cut calculations were adjusted under the Five-Year Operating Plan for the Park. These reflected the 1983 blowdown and land withdrawals to create reserves for deer yards. In addition, the hemlock allocation was increased to reflect the dominance of tolerant hardwoods in a number of stands typed as hemlock in the Forest Resources Inventory. These revised allocations became the planning targets for the review period.

The management planning process provides regular occasions to compare the actual harvests with the planned amounts. Table 2 shows that some working groups in Algonquin Park were under-harvested relative to planned levels while others were seemingly over-cut for the period 1985-1990.

The **tolerant hardwood** area harvested was 10,787 hectares below the allowable. However, the planned area included approximately 13,000 hectares of "unused" allowable cut in this working group carried over from the 1980-1985 period. In fact, the planned harvest for this period was accomplished. The main reasons why this residual area was not harvested were the lack of markets due to a shutdown of two lumber mills in 1989 and a deliberate reduction of harvesting levels in some areas. The volume per hectare of hardwood sawlogs is expected to decrease over the next ten years as a result of previous highgrading. Undercutting the stands now will insure continuity of product supply during the 1990's. In the late 1980's, MNR eliminated the provision for carryover.

The **hemlock** working group was overcut relative to the original 1985 allocation. The 1990-95 TMP refers to changes that have since been made to the calculations for this working group to permit a level of harvest based on a more accurate assessment of the amount of hemlock.

**Poplar** and **white birch** stands were undercut in the review period. This was due to a lack of markets for the low quality material.

There was a 19% undercut in the **white pine** working group over the five-year period (and a 26% undercut compared to the allowable). By way of explanation, the management plan for 1990-1995 notes that a conscious effort was made to control the volume of pine harvested. Because more pine was cut than expected from non-pine working groups (not part of the pine MAD landbase), the allowable volume limit determined the cut, rather than the pine's MAD by area calculation.

## 2.4 EXPENDITURE RECORDS

As noted above (section 2.1.1) the FMU Agreement calls for regular reporting of planned and actual expenditures. The review team found that the A.F.A. met its obligations with respect to the expenditure reporting.

The reviewers intended to use the A.F.A.'s financial records and activity reports to assess the unit costs of activities performed under the FMU Agreement. MNR regional staff provided a list of regional costs (regional averages and ranges) to provide points of comparison in assessing cost efficiency.

It was not possible to perform a direct unit cost comparison. The A.F.A.'s financial records conformed to Generally Accepted Accounting Practices but they were not organized in the best way to support forest management evaluation and planning. For much of the review period the spending records were too broadly sub-categorized to be useful and in some instances categories were inconsistent from one year to the next. Although the forest management accounting system improved over the course of the five years and is now more closely matched to the activities reporting system, some of the categories are still too broad and the system still does not entirely match the MNR system of accounting. The A.F.A. financial records keeping could be enhanced by matching activity reporting more perfectly to financial reporting categories and by ensuring consistency with the Ministry reporting system.

Even if these changes are made, it may be difficult to directly compare unit costs of activities performed by the A.F.A. and those conducted by MNR because indirect costs are treated differently in the two accounting systems. The review team encountered different opinions as to the cost efficiency of work performed by the A.F.A. In addition, the review team felt that the special management concerns in the Park, such as seasonal operating restrictions, can often result in higher costs.

It is worth noting that the FMAs include a formal rate schedule for silvicultural treatment reimbursements, based on MNR district average costs. The reviewers recognise the merits of agreeing on treatment costs or cost ranges in the early stages of planning. Since the five-year schedules have sometimes proved too inflexible, a rate schedule could instead be developed early in the annual planning process and included in the Annual Work Schedule.

**RECOMMENDATION 3:** That the A.F.A. enhance their accounting system by recording total (direct and indirect) project costs under forest management activity categories similar to those employed by the Ministry.

**RECOMMENDATION 4:** That the Minister and the Algonquin Forestry Authority incorporate a formal rate schedule for silvicultural work directly into the FMU or in the Annual Work Schedules under the Agreement.

It is important to note that these two recommendations are linked. A rate schedule can only be effective when there is an understanding and agreement on an accounting system.

## 2.5 FUNDING MECHANISMS

The FMU Agreement provides three mechanisms to fund the activities performed under it:

- 1) retained stumpage -- Crown Dues that would normally be paid to the Province for wood cut in the Park;
- 2) supplementary funding allocated by the Minister of Natural Resources; and
- 3) retained surpluses carried forward from previous years.

The A.F.A. initially took on the responsibility for marking, road maintenance, and wood measurement in an interim period prior to the signing of the FMU Agreement. A.F.A. staff have come to view these three activities as their "core programme". The Authority's general practice has been to fund this core programme through retained stumpage. Monies for silviculture have been sought directly from MNR. There is no basis in the FMU Agreement for making this funding distinction and it reduces the A.F.A.'s flexibility.<sup>2</sup> In an extended agreement, all programmes including silviculture should be considered "core" and no ear-marking of specific funding sources is needed.

Figure 2 illustrates the composition of FMU revenues. Stumpage revenues were strong throughout most of the review period and supplementary silvicultural funding from the Ministry increased steadily from \$63,648 in 1985-1986 to \$561,743 in 1989-1990. (Values are not stacked in this graph; 1989/90 total stumpage was \$1.08 million.) In the last year of the review period and in the year following, poor economic conditions led to reduced harvest levels (lowering Crown Dues and scaling revenues) and a slight decline in Crown dues rates (which are linked to final product prices). Note too that decreased harvesting implies an eventual slowdown in activities such as marking.

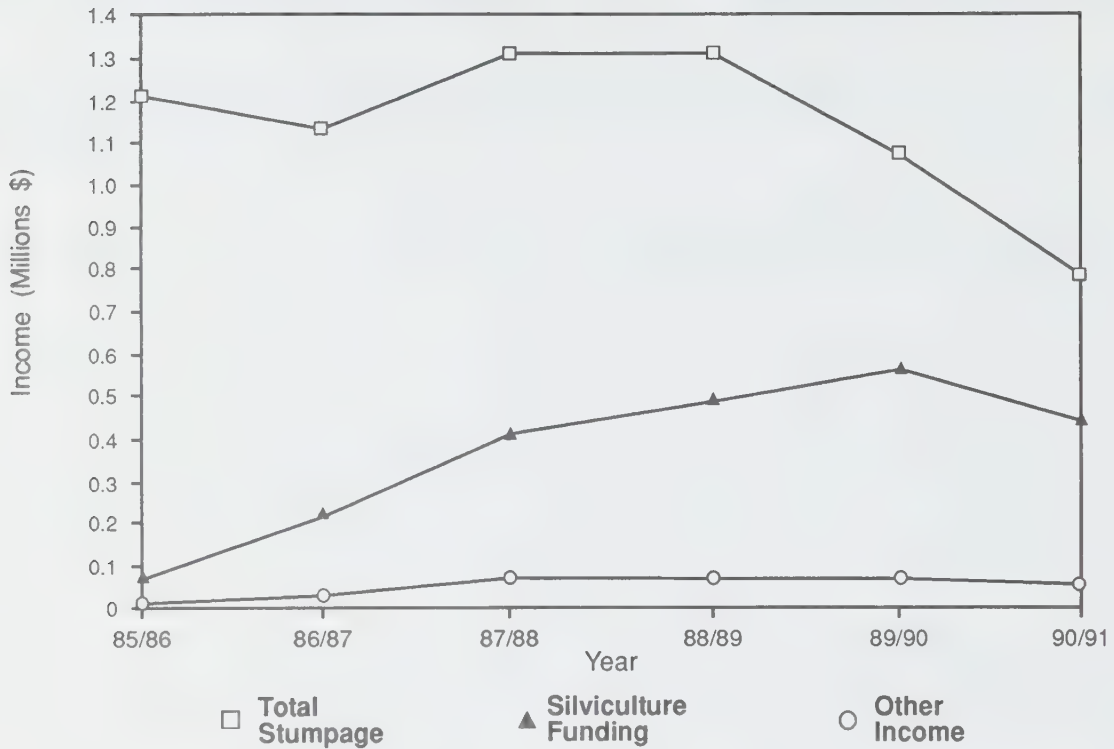
As figure 3 shows, the A.F.A. has demonstrated sound financial management during the course of the review period, closely balancing revenues and expenditures (including administrative costs).

In 1990-91, the deteriorating revenue intake forced the A.F.A. to draw down surpluses generated in previous years. A.F.A. staff maintain that this situation has led the A.F.A. to cut back on other activity levels and hurt the A.F.A.'s overall financial position. The road maintenance costs have increased more than expected which has reduced the A.F.A.'s reserves for other activities.

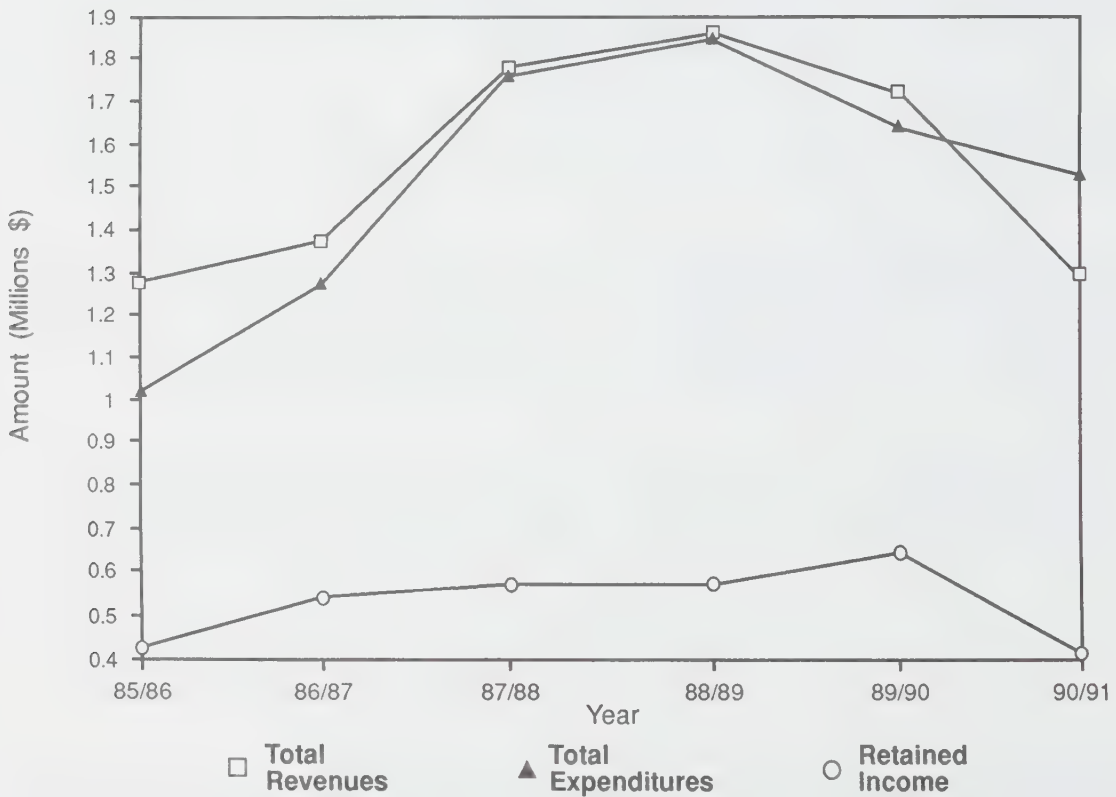
The A.F.A. was concerned that the recession-induced reductions in stumpage revenues were forcing it to draw on its retained income under the FMU Agreement. However, cumulative surpluses of over half a million dollars were kept on the books for most of the review years. It is the opinion of the

<sup>2</sup> The Agreement states that forestry and road maintenance programmes are to be funded from retained stumpage and any Ministerial allocations. Forestry is defined to include not only marking, but also tending, regeneration, seed production, pest control, and site preparation. (See Forest Management Undertaking Agreement, Section 30(2) and 31(1) and Schedule D.)

**Figure 2. FMU Income Composition\***



**Figure 3. FMU Financial Position\***



\* Data in Appendix II

review team that it is appropriate to use this retained income as a "rainy day fund" to cover management costs when the economy is in decline.

Despite the fact that the FMU Agreement specifically gives the Minister the discretion to augment funding (Para. 31.1), MNR and A.F.A. followed a set funding approach during the review period. It became accepted practice to fund the "core programme" (marking, road maintenance, and scaling) from retained stumpage and to apply to the Ministry for supplementary funding for silviculture. MNR funding has been approximately \$500,000 annually.

A.F.A. staff explained the difficulty of planning an ambitious silvicultural programme within the traditional level of supplementary funding. MNR District staff hold the view that the A.F.A. should be more pro-active in co-operatively developing a full programme of silviculture. The review team felt that silviculture should be eligible for funding from all sources within the Agreement. It is also felt that the level of funding for the FMU Agreement should be increased if a more balanced and comprehensive silviculture programme can be justified.

Algonquin Park contributes over 40% of the regional timber supply. Many local industries depend on the park for a large proportion of their raw material. Because of the Park's regional wood supply importance, it is essential that adequate funding for silvicultural treatments be ensured. The economic recession which began in 1990 has made it difficult for the review team to propose ways of enhancing Agreement revenues. Many of the A.F.A.'s clients are finding it difficult to pay for wood from the Park where costs are higher than those outside. The provincial government has seen its overall revenues decline and social expenditures increase as economic activity has slowed. However, it is proposed that MNR and the A.F.A. consider the following options for generating more revenue when the economy improves:

- 1) The A.F.A. could introduce a silviculture and renewal cost factor into its sale prices.
- 2) The Crown dues system could be amended to allow the A.F.A. to charge third-party licensees a higher, fairer price for high quality wood.
- 3) MNR could increase the silvicultural monies using the direct funding mechanism provided in the FMU Agreement.
- 4) The A.F.A. could commit a portion of its general sales revenues to funding Agreement activities.

Although the review mandate did not extend to the allocation of silviculture spending within the region, (See section 3.4) the review team believes that this question merits further study.

**RECOMMENDATION 5:** That silviculture be included in the "core programme" for the extended Agreement and as such be eligible for funding from all specified sources.

**RECOMMENDATION 6:** That MNR and A.F.A. examine ways to increase silvicultural levels under the FMU.

## 2.6 ROAD MAINTENANCE

The FMU Agreement committed the A.F.A. to perform all maintenance on six sections of public access, multiple use roads. A total of 195.5 kilometres was maintained, funded by retained stumpage.

The review team found that the A.F.A. had ably performed its maintenance duties and that the FMU has worked well in this area. The A.F.A. informed reviewers that road costs had increased more rapidly than was anticipated in 1985, restricting the ability of the A.F.A. to undertake capital improvements such as resurfacing. This indicates that the present approach to funding may not continue to support the desired level of maintenance. There is some question as to whether the A.F.A. should be expected to fund an increasing cost activity out of a volatile flow of revenues.

Some sections of the roads maintained by the A.F.A. are outside of Algonquin Park and the bordering municipalities and townships do not contribute to their maintenance. Use patterns were reported to have changed on these roads during the review period - more public use and less logging traffic. The review team felt that the A.F.A.'s commitment to maintain outside roads should be re-negotiate. Reviewers felt that either road maintenance obligations should be reduced or the A.F.A. should receive other (e.g. municipal) funding support.

**RECOMMENDATION 7:** That road use patterns outside the Park be examined by MNR, A.F.A., other Ministries and agencies, and local municipalities with a view to sharing costs more equitably. The new formula would be reflected in the FMU.

## 2.7 SILVICULTURAL RECORDS

The FMU Agreement calls for annual reporting of planned and actual activities. In the first years of the Agreement the annual reports show planned activities in the text of the report. Tabular summaries appear later in the review period, as reporting improved over the five years.

The 1990-2010 TMP summarises planned and actual activities during the preceding five years. These data indicate that even-aged management has been substantially less than planned and uneven-aged management correspondingly more. This shift occurred because of a move to greater use of the selection harvesting in tolerant hardwood stands because operational cruise inspections of these stands revealed that they had a structure and level of quality more suited to management by this method.

## **2.8 ANNUAL TIMBER MANAGEMENT REPORTS**

Paragraph 14 of the FMU Agreement calls for the A.F.A. to provide the Minister with a summary report of work targets accomplished each year by April 15th following the year end. Although it was not possible for the review team to independently calculate areas treated in the field, MNR staff monitoring the Agreement verified that the annual reports were accurate with respect to both silvicultural treatments and road construction and A.F.A. and MNR records showed that activity reports were submitted on time throughout the review period.

## **2.9 INTEGRATION WITH OTHER FOREST USES**

The A.F.A. operates exclusively within the Recreation\Utilization Zone, and it is obliged to integrate its operations with the needs of recreational Park users. The review team agreed that the A.F.A. has been enlightened and pro-active in addressing public concerns and the needs of different Park users.

The A.F.A. was very conscious of public opinion and tried to minimise conflicts with other Park users. The review team was made aware of the sometimes conflicting preferences of different types of recreationists, which added to the difficulty in integrating forestry and recreation. The tourist operator who was interviewed expressed satisfaction with the A.F.A.'s integration of forestry and recreation. The A.F.A. left the required visual buffer zones, contoured roads to improve the aesthetic appeal of portages, and refrained from using the high traffic Crow and Nipissing River crossings between late May to Thanksgiving.

The A.F.A. shielded recreational users from equipment noise by maintaining sound buffer zones and by halting logging activities during peak tourist season. MNR assisted by providing timely notification to outfitters of planned logging operations. Some recreationists complained of industrial noise in off-peak seasons, but the tourist operator interviewed felt that these complaints were negligible in relation to the total number of Park visitors.

The review team saw a number of roadside landings with significant amounts of tops and cull logs. Although these were on roads closed to the general public, the review team felt that a greater effort could have been made to clean up landings by dispersing this material. The A.F.A. indicated that they had recently adjusted their logging system in a way that would reduce leftover material.

Although wildlife provides important Park values, management of wildlife was hindered by the lack of a wildlife management plan for the Park. Such a plan is now being developed for incorporation in the new Park Master Plan. It should provide an important new framework for managing wildlife in the next FMU period. This plan should include population targets for major species, as well as guidelines for landscape design and diversity.

The MNR and A.F.A. have, in the period following March 31, 1990, revised marking guidelines to encourage the leaving of den trees. Conifer plays an important role as winter shelter for wildlife. The review team had concern that the conifer component on the west side of the Park may be less than adequate in size and/or distribution. In future, the A.F.A. and MNR should give special consideration to preserving a conifer component in the tolerant hardwood working group.

Several of the A.F.A. staff indicated that the A.F.A. was prepared to play a broader management role. They believed that the A.F.A. could better achieve MNR and Park Master Plan objectives if a biologist was a full-time staff member. A.F.A. staff also expressed the opinion that the Authority should be given the responsibility under an extended FMU Agreement to further practise integrated resource management (IRM).

## **2.10 REPORT ON OTHER OBLIGATIONS**

### **2.10.1 WOOD MEASUREMENT**

The ground rules of the FMU Agreement give the A.F.A. responsibility for scaling (i.e. wood measurement) according to standards prescribed by MNR. In addition, the Authority is charged with processing the resulting measurement data while the MNR has audit responsibility. Schedule "D" of the ground rules stipulated a minimum annual level of scaling of 421,000 m<sup>3</sup>. This minimum was not met in 1989-90 due to poor economic conditions.

MNR was able to eliminate duplication of effort by transferring scaling duties to the A.F.A. Ministry officials said that the A.F.A. scaling met MNR standards and praised the working relationship between the field level staff of the A.F.A. and MNR.

The reviewers examined a recent scaling audit undertaken by MNR. No significant errors or discrepancies had been encountered.

### **2.10.2 BARREN & SCATTERED SURVEY**

As stated in the FMU, both parties agreed "to jointly survey" all lands within the Recreation/Utilization Zone which were either cutover in the 1968-78 period or Barren and Scattered (B&S), except areas classified by the Forest Resource Inventory (FRI) as tolerant hardwood working group. The purpose of the surveys as outlined in the FMU was to provide information to enable the two parties to devise a plan for remedial action in the pine working groups. These surveys were to have been completed by March 31, 1987.

The parties agreed that the A.F.A. would survey lands identified as barren and scattered in the inventory and the MNR the 1968-1978 cutover. A preliminary report was submitted by the A.F.A. prior to March 31, 1987. Revisions were done to this report and thus completed by target date. Meanwhile, MNR funding constraints in the middle years of the Agreement delayed their portion of the survey.

To date, aspects of these surveys have been used to update the Forest Resources Inventory and help identify areas that required silvicultural treatment. However, a comprehensive plan of remedial action was never jointly developed. The lack of completion of this plan has resulted in the delay of production of the Pine Tactical Plan.

**RECOMMENDATION 8:** That MNR and A.F.A. make it a priority to agree on the status and treatment of the Barren and Scattered and recent cutover areas.

### **2.10.3 AGREEMENT REVIEW**

The current review is eighteen months late. The original 1989 review date conflicted with the Park Master Plan Review and MNR felt it appropriate to delay this review. The lateness has reduced the effectiveness of this review, since some issues that arose during the review period have been resolved and other issues have subsequently arisen but are beyond the review period given in the terms of reference. It should also be noted that the lateness of this review has delayed exploration of improved funding approaches, to the detriment of the A.F.A.

**RECOMMENDATION 9:** That the next five year-review commence not later than ninety days following March 31, 1995.

### **3. EFFECTIVENESS OF SILVICULTURAL PROGRAMMES**

#### **3.1 MARKING**

Tree marking, the process of designating which individual trees are to be harvested, is an important component of the A.F.A.'s "core programme".

In this operation, trees are marked with paint by trained personnel (tree markers) who follow instructions or a prescription which is written by the forester responsible for managing the forest area. Prescriptions are written to meet a variety of objectives as determined by the Timber Management Plan. The prescription objectives usually integrate silvicultural goals with social, environmental, and economic values. For example, a marking prescription might include the retention of four or five den trees per hectare to maintain wildlife.

Since marking affects the structure, quality, and species composition of the residual forest, it also affects its potential to provide other forest values. Tree marking is therefore the most critical activity in the A.F.A.'s silvicultural operations.

Under the FMU it is the MNR mandate to audit marking. At present MNR District staff audit every marking project conducted or supervised by the A.F.A. MNR staff were not aware that the A.F.A. also conduct a thorough series of audits. A.F.A. staff stated that they check their marking several times before harvest. However, claiming that it is an inefficient use of time, the A.F.A. keeps no formal record of such audits and the information is not shared with MNR. This had led to a duplication of effort and put the District in a "policing" role as opposed to a collaborative one.

Another issue that surfaced in the interviews with MNR staff was that while the A.F.A. was clearly committed to adhering to the letter of the FMU Agreement marking standards, they were unwilling to amend their marking prescriptions to reflect changing environmental values. For example, one change which was adopted by surrounding districts was the expanded provision for wildlife habitat through a greater retention of hemlock. The A.F.A. were unwilling to adopt this practice.

A.F.A. markers are limited to attending a marking course given annually by A.F.A. staff. It would be beneficial for A.F.A. markers to participate in marking courses given in MNR districts within the region. Broader exposure to evolving management practices can only serve to increase the expertise of the markers and the quality of their work.

More agencies have begun to appreciate the skills required to mark according to prescription. In the near future, MNR will require its markers to be certified.

**RECOMMENDATION 10:** That the A.F.A. commit to ensuring that staff and contract markers regularly attend Ministry marking courses and that the A.F.A. commit to having its staff and contract markers meet the Ministry's professional standards for marking.

**RECOMMENDATION 11:** That over the next five years the MNR reduce its auditing of marking and replace the auditing of every block with spot checks. As the MNR auditing function is scaled down, the A.F.A. be required to keep formal records of its own audits and to share them with MNR.

**RECOMMENDATION 12:** That the FMU include a provision for continuous upgrading of marking procedures as they evolve.

## **3.2 STAND IMPROVEMENT AND OTHER SILVICULTURE**

Many stands in Algonquin were highgraded in the 1800's through to the 1950's, which degraded them. Thus, many stands have a great deal of low quality material which could not be profitably logged in market conditions existing during the review period. This presents a silvicultural problem since a high-priority silvicultural objective is to upgrade quality of these stands. Removal of low-quality wood is essential to meet management objectives. To enable harvesters to meet stand improvement objectives, funds are provided to assist in the cutting and removal of this low quality material.

### **Pine**

The pine working group is largely managed under the uniform shelterwood system. This approach relies on natural pine regeneration. Where regeneration fails or is insufficient, hardwoods and other competition will generally enter, especially on moister sites. When this happens, or is expected to happen, the ground rules call for an appropriate combination of site preparation, seeding, planting, and/or control of competition.

The review team was informed that hardwood regeneration had been allowed to return on some areas of the pine working group. The review team was shown examples of this in the field. The A.F.A. felt that this was an acceptable situation, and there was no reason to remove hardwood regeneration so that a pine stand could be developed. A.F.A. personnel also maintained that such spending is a less efficient use of funds, since the greatest return comes from investing in relatively inexpensive tolerant hardwood stand improvement treatments which yield good results.

The A.F.A. stated that an even larger area currently in other working groups had developed young pine underneath the canopy and was in the process of moving into the pine working group. It was also wary of committing to an ambitious programme of intensive forest management for conifer when it could be disrupted by budget and/or stock constraints.

Ministry staff, on the other hand, are concerned that pine regeneration is inadequate and argue that the A.F.A. should follow the complete prescription for pine management. Moreover, they are not convinced that A.F.A. staff are systematically surveying the cutover areas soon enough and keeping a record of the response on the site. During the review period, A.F.A. practice was to wait ten years after cutting before checking regeneration. The review team saw some instances where this had resulted in missed opportunities to "release" natural regeneration that was later out-competed by undesirable species.

MNR staff were also concerned that the minimum acceptable Not Satisfactorily Regenerated (NSR) stocking level of 30% for the primary species (pine) and 10% other acceptable species was being viewed by A.F.A. as a target, and may be inadequate to ensure suitable pine stands in the next generation. Reviewers shared this concern, especially since the Park contains some of the best pine sites in Ontario.

At issue is the nature and correct intensity of management. The review team feels that the A.F.A. approach of accepting whatever regeneration comes back does not constitute management. Management consists of setting objectives and then designing programmes to meet them. The objective of obtaining pine regeneration on existing pine sites is not being met as fully as it should be, or as fully as the ground rules require. This problem is compounded by the lack of knowledge of the status of regeneration, which should have been resolved by the surveys of Barren and Scattered and recent cutovers.

However, to treat more pine area, the A.F.A. might be required to shift funds away from hardwood management. Since pine management is more expensive on a per hectare basis, fewer total hectares in the Park would be treated unless more funding is applied to the whole silviculture programme. These issues will have to be carefully weighed in light of the diversity of the regional forest products industry. No conclusions can be reached on the basis of single hectare based analysis of economic benefits and costs. Such an analysis fails to reflect the wood supply picture over time and the role that different types of timber play in maintaining the local economy.

At present, a joint MNR/A.F.A. strategic plan for pine is in the initial development phases. This plan will identify the extent of backlog pine sites requiring treatment, and the nature and cost of treatment. This direction is fully endorsed by the review team. However, efforts should be made to prevent creating more NSR area. A pre-cut inspection of each harvest block would enable MNR and A.F.A. staff to draw on their combined experience to select the most appropriate treatment. This would go a long way towards remedying the current situation.

## **Tolerant Hardwoods**

The review team concurred that stand management in the tolerant hardwoods was in general satisfactory. However, as in pine, a question arises as to the distribution of funding. In this case MNR staff expressed concern that stand improvement was funded in hardwoods in the southwest corner of the park at the expense of hardwoods in the northwest.

Several points can be made in support of the funding allocation. Demand for low quality product is especially low in the NW sector of the Park. The A.F.A. has tried to be pro-active in selling low quality wood in this area by using the sawlog supply as a lever. But competition from Quebec and distance to some of the mills act to limit sales.

Discussion between MNR and A.F.A. staff during field visits to these areas indicated a willingness to move away from the current "all or nothing" approach to stand improvement. Partial stand improvement operations, in which only large cull trees with excessive crowns are felled, release some of the better quality stems. However, the remaining marked trees may be stored on the stump and are likely to provide low end product in the next harvest. Thus, partial stand improvement is only a partial solution since growing room is still allocated to the remaining poor quality trees, and the desired full release of seedlings, saplings, and polewood stems does not occur.

During the review, the review team was told by MNR that the A.F.A. had resisted pursuing activities such as girdling and felling and leaving unmerchantable material. While there may be silvicultural advantages to these activities, the review team agreed with the A.F.A. that these activities were incompatible with Park values.

Lastly, the reviewers were concerned that stand assessments in these working groups were not being conducted on a timely basis. The review period saw no systematic surveying of site response to treatments and no records kept.

## **Hemlock**

During the review, MNR staff expressed concern over the state of the hemlock working group, which is important for wildlife. The reviewers share MNR's concern. The age class structure shows very few stands younger than 120 years. Some regeneration does occur but little survives. There is no complete explanation for this, although heavy browsing is a partial cause. The extent of this problem is poorly documented; hemlock was sometimes unexpectedly found on sites visited during the review.

MNR has recently initiated a research project to document stand history and structure and its impact on hemlock regeneration. This is endorsed by the reviewers. Alternate harvesting and site preparation approaches should also be tested. The A.F.A. is encouraged to cooperate by sharing their expertise.

## Data Collection/Analysis

The A.F.A. has been slow off the mark in putting in place a system for tracking regeneration and residual growth. Although there is evidence that this has begun, it did not occur during the review period. This has had the effect of locking in place allowable cut calculations which were supposed to be responsive to forest mensuration information and has delayed identification of possible regeneration problems.

**RECOMMENDATION 13:** That the cost of undertaking a complete programme of silvicultural activity, including "full" hardwood stand improvement and pine regeneration, be determined as well as the cost of intermediate levels of activity.

**RECOMMENDATION 14:** That partial stand improvement activities be allowed where appropriate.

**RECOMMENDATION 15:** Recognizing the importance of hemlock to wildlife management, biodiversity, and aesthetics, and given the current lack of recruitment in the younger age classes, that a targeted management strategy be developed for maintaining hemlock.

**RECOMMENDATION 16:** That all pine areas planned for harvest should be inspected prior to the harvest and plans drawn up for appropriate silviculture activities and that MNR and A.F.A. meet their recent commitment to co-operatively devise a tactical plan for management in the pine working groups.

**RECOMMENDATION 17:** That the MNR and A.F.A. jointly develop and implement a system for surveying and tracking regeneration for all working groups. The system should be designed so that regeneration is surveyed in a timely manner and be accessible to both MNR and the A.F.A.

## **4. ACHIEVEMENTS AND CONCERNS**

### **4.1 AFA COMMENTS**

- overall the Agreement has worked well and field relationships between MNR and A.F.A. staff are excellent;
- this review should not have been late;
- funding is tight relative to the responsibilities under the FMU Agreement and is not proportionate to the park's role in regional wood supply;
- MNR's supervisory activities, especially of marking, often conflict with AFA's understanding of their mandate to be the forest managers;
- MNR pressure to undertake certain silvicultural treatments, such as felling and leaving trees and girdling, are inconsistent with the A.F.A.'s view of what is acceptable to Park users;
- A.F.A. is now ready to take on wider responsibility for integrated resource management in the Park and would like to be assured of the funding required to staff such endeavours.

### **4.2 MNR COMMENTS**

The MNR had the following comments and concerns:

- overall the Agreement has worked well and field relationships between MNR and A.F.A. staff are excellent;
- A.F.A. staff are unquestionably the forest managers and will require less "policing" in the next five-year period;
- A.F.A. monitoring, record keeping, and information sharing was less than satisfactory in the first five-year period;
- not enough silvicultural effort was directed towards the pine working groups and northwestern tolerant hardwood stands and MNR would like to see the A.F.A. develop a balanced forest management programme on their own initiative;
- A.F.A. have been slow to adopt innovations in some areas (e.g. marking prescriptions) and have not always fully subscribed to Ministry information-sharing and upgrading efforts;

### 4.3 OTHER GROUPS' COMMENTS

- Industry felt that A.F.A. was doing a good job and praised A.F.A. for constraining spending on expensive silviculture.
- Industry also praised A.F.A. for getting in the front end of logging operations by helping third party operators to plan cuts for silvicultural and IRM considerations.
- Algonquin Outfitters staff felt that logging was performed with due consideration for recreational values.
- All outside groups felt that the A.F.A.'s sensitivity to public concerns had prevented intense public conflict over Park use.

## 5. CONCLUSIONS AND RECOMMENDATIONS

### 5.1 CONCLUSIONS

The review committee concluded that the Algonquin Forestry Authority satisfactorily performed its obligations under the FMU Agreement during the five-year period under review. The FMU Agreement has been effective in contributing to the achievement of A.F.A. and MNR objectives. The review team recommends that the Agreement be extended for a further five-year period.

The reviewers have identified a number of opportunities for improving the Agreement. Once the recommendations have been evaluated and implemented by MNR and A.F.A., the FMU can be amended accordingly.

The review team wishes to conclude by observing that while the A.F.A. has scrupulously followed the letter of the FMU, the A.F.A. rarely exceeded the requirements set out in the Agreement. During interviews, MNR staff were unanimous in the view that the A.F.A. had not surpassed their commitments under the Agreement. When asked to provide examples of over-achievement, the A.F.A. cited their move to a tree length system for taking logs from the bush into sorting yards. This system uses smaller landings and reduces the accumulation of unusable wood on the landing areas. A.F.A. staff also highlighted their sensitivity to public concerns regarding forestry practices.

### 5.2 RECOMMENDATIONS

In the course of this assessment, a number of concerns with the working of the current Agreement and opportunities for improved performance were identified. The review team submits the following recommendations with the objective to improving the Agreement, performance under the Agreement, and relevant conditions external to the Agreement.

**RECOMMENDATION 1:** That the MNR and A.F.A. eliminate unnecessary management plan reporting by using the Timber Management Plan reporting process exclusively, with the retention of the February 15th advance budgeting estimate.

**RECOMMENDATION 2:** That the role and authority of the MNR administrative levels and monitoring, implementation, and reporting relationships be spelled out in the FMU.

**RECOMMENDATION 3:** That the A.F.A. enhance their accounting system by aggregating direct and indirect project costs under forest management activity categories such as those employed by the Ministry.

**RECOMMENDATION 4:** That the Minister and the Algonquin Forestry Authority incorporate a formal rate schedule for silvicultural work directly into the FMU or in the Annual Work Schedules under the Agreement.

**RECOMMENDATION 5:** That silviculture be included in the "core programme" for the extended Agreement and as such be eligible for funding from all specified sources.

**RECOMMENDATION 6:** That MNR and A.F.A. examine ways to increase silvicultural levels under the FMU.

**RECOMMENDATION 7:** That road use patterns outside the Park be examined by MNR, A.F.A., other Ministries and agencies, and local municipalities with a view to sharing costs more equitably. The new formula would be reflected in the FMU.

**RECOMMENDATION 8:** That MNR and A.F.A. make it a priority to agree on the status and treatment of the Barren and Scattered and recent cutover areas.

**RECOMMENDATION 9:** That the next five-year review commence not later than ninety days following March 31, 1995.

**RECOMMENDATION 10:** That the A.F.A. commit to ensuring that staff and contract markers regularly attend Ministry marking courses and that the A.F.A. commit to having its staff and contract markers meet the Ministry's professional standards for marking.

**RECOMMENDATION 11:** That over the next five years the MNR reduce its auditing of marking and replace the auditing of every block with spot checks. As the MNR auditing function is scaled down, the A.F.A. be required to keep formal records of its own audits and to share them with MNR.

**RECOMMENDATION 12:** That the FMU include a provision for continuous upgrading of marking procedures as they evolve.

**RECOMMENDATION 13:** That the cost of undertaking a complete programme of silvicultural activity, including "full" hardwood stand improvement and pine regeneration, be determined as well as the cost of intermediate levels of activity.

**RECOMMENDATION 14:** That partial stand improvement activities be allowed where appropriate.

**RECOMMENDATION 15:** Recognizing the importance of hemlock to wildlife management, biodiversity, and aesthetics, and given the current lack of recruitment in the younger age classes, that a targeted management strategy be developed for maintaining hemlock.

**RECOMMENDATION 16:** That all pine areas planned for harvest should be inspected prior to the harvest and plans drawn up for appropriate silviculture activities and that MNR and A.F.A. meet their recent commitment to co-operatively devise a tactical plan for management in the pine working groups.

**RECOMMENDATION 17:** That the MNR and A.F.A. jointly develop and implement a system for surveying and tracking regeneration for all working groups. The system should be designed so that regeneration is surveyed in a timely manner and be accessible to both MNR and the A.F.A.



# Appendix I - Glossary of Technical Forestry Terms

**Age Class:** One of the intervals into which the age range of forest stands is divided for classification and use.

**Allowable Cut:** See Maximum Allowable Depletion.

**Annual Work Schedule:** A statement, mainly tabular in form, showing the order and extent of all work of any nature to be carried out during one year consistent with the Timber Management Plan.

**Clear Cut (harvesting operation):** The removal of the entire standing crop over a considerable area in one operation, with or without leaving seed-trees. In practice, may refer to exploitation that leaves much of unsaleable material standing.

**Clear-cut system:** An even-aged silvicultural system where the entire growth is harvested over a considerable area in one operation, with or without leaving seed-trees.

**Crop:** The vegetation growing on a forest area, more particularly the trees forming stands.

**Cutting Age:** The age at which an individual tree or crop attains the properties required to fulfil the objects of management.

**Cutting Cycle (management):** The planned period within which all portions of a working group or forest unit should be partially cut over in orderly sequence under the selection system.

**Depletions:** A diminution of the growing stock on the forest estate: in the maximum allowable depletion area control process, a recording against currently allocated areas caused by harvest, burning, flooding, wind damage, insects and disease, allocation to other ownership or uses, and declaration of inoperability (bypass).

**Dominant:** Generally an individual or species of the upper layers of the canopy. Of a species in a mixed crop, that is the most numerous and vigorous.

**Even-Aged:** Applies to stands or forests in which relatively small age differences exist between individual trees. The maximum difference in age is usually twenty years.

**Final cutting:** The removal of seed or shelter trees after regeneration has been effected, or removal of the entire crop of mature trees under a clear-cut silvicultural system.

**Forest:** (Ecology) A plant community predominantly of trees and other woody vegetation, growing more or less closely together. (Silvicultural management) An area managed for the production of timber and other forest products, or maintained under woody vegetation for such indirect benefits as protection of site or for recreation.

**Forest Inventory (management):** A survey of an area to determine such data as area, condition, timber, volume, and species, for specific purposes such as planning, purchase, evaluation, management, or harvesting.

**Forest Management Agreement (FMA):** A contractual agreement between the MNR and a company under the Crown Timber Act to provide for a continuous supply of forest products from the designated lands for the wood-processing plants of the company and to ensure that the forests on such lands are harvested and regenerated to produce successive crops of timber on a sustained-yield basis.

**Forest Products:** Any raw material yielded by trees.

**Forest Renewal:** Those silvicultural operations that are undertaken to provide forest cover.

**Ground Rules:** Provide specifications, standards, and other instructions (mostly silvicultural) to direct management on management unit areas for a term concurrent with the operating period of the Timber Management Plan.

**Harvest Cut:** The cut(s) recorded as depletions from which yield is derived; it may be either a single (clear-cut) or a series of cuts to produce regeneration (shelterwood, selection).

**Harvesting:** The removal of forest products for utilization, comprising cutting and sometimes initial processing and extraction.

**Improvement Cutting:** The elimination or suppression of less valuable in favour of more valuable tree growth, typically in mixed uneven-aged forest.

**Management Documents:** Consists of management plan, Annual Work Schedule, and ground rules.

**Maximum Allowable Depletion (MAD) (management):** The calculated amount of area from which timber may be depleted over the five-year term of a Timber Management Plan by any means, including harvesting, fire, insects, disease, inoperability, or because of the allocation of the area to other uses to fulfil the objectives of management.

**Not Satisfactorily Regenerated (NSR):** Productive forest land, not stocked to a specified standard, or which has not attained free-to-grow status.

**Productive Forest Land:** All forest areas capable of growing commercial trees and not withdrawn from such use.

**Regeneration:** The renewal of a tree crop whether by natural (self-sown seed or by vegetative means) or artificial means (sowing and planting). This term may also be used to describe the young crop itself.

**Regeneration Class:** The area, and the young trees in the area, being managed during the regeneration interval in the shelterwood silvicultural system. In this interval old and young trees occupy the same area, young being protected by the old.

**Regeneration Interval:** The period between the seed cut and the final cut on a particular area under one of the shelterwood systems.

**Regeneration Period:** The period of time encompassing the delay period and the establishment period.

**Rotation Period:** The planned number of years between the year of harvest of one crop to the harvest of the next crop to a specified condition at maturity.

**Salvage Cut:** The removal of trees killed or injured by fire, insects, fungi, or other harmful agencies for the purpose of utilizing merchantable timber before it becomes worthless.

**Scarification:** Mechanical loosening of the topsoil of open areas, or breaking up the forest floor in preparation for regeneration by natural seeding. In Ontario, it is applied exclusively on recently harvested jack pine cutovers.

**Seed Cut:** Removing trees in a mature stand so as to effect permanent opening of its canopy and so to provide conditions for securing regeneration from the seed of retained trees; the first (if there was no preparatory cutting) of the shelterwood cuttings under a shelterwood system.

**Seed-Tree (harvesting operation):** A clear cut save for a small number of seed bearers left singly or in small groups.

**Selection Cut (harvesting operation):** The removal of mature and/or undesirable trees individually or in small groups at relatively short intervals.

**Selection System:** An uneven-aged silvicultural system where mature and/or undesirable trees are removed individually or in small groups over the whole area, usually in the course of a cutting cycle.

**Shelterwood Cut (harvesting operation):** The removal of mature trees in series of two or more cuts (preparatory, seed, removal, final) whether by cutting uniformly over the entire stand area or in strips.

**Shelterwood System:** An even-aged silvicultural system where mature trees are harvested in a series of two or more cuts (preparatory, seed, removal, final) for the purpose of obtaining natural regeneration under shelter of the residual trees, whether by cutting uniformly over the entire stand area or in narrow strips. Regeneration is natural. Regeneration interval determines the degree of even-aged uniformity.

**Silviculture:** Generally, the science and art of cultivating forest crops, based on a knowledge of silvics. More particularly, the theory and practice of controlling the establishment, composition, constitution, and growth of forests.

**Silvicultural System:** A process, following accepted silvicultural principles, whereby crops constituting forest are tended, harvested, and regenerated, resulting in the production of crops of distinctive form. Systems are conveniently classified according to the method of harvesting the mature stands with a view to regeneration and according to the type of crop produced thereby.

**Silvicultural Treatment:** The activities, whether biological or managerial, through which a silvicultural prescription is met.

**Site:** An area considered in terms of environment, particularly as this determines the type and quality of the vegetation the area can carry.

**Stand:** A community of trees possessing sufficient uniformity in composition, constitution, age, arrangement, or condition to be distinguishable from adjacent communities, so forming a silvicultural or management entity.

**Stocking:** An expression of the adequacy of tree cover on an area, in terms of crown closure, percentage of stocked quadrats, number of trees, basal area, or volume, in relation to a pre-established managerial norm.

**Stumpage Charges:** The amount equal to the total of the amount of the Crown dues and any other amounts added thereto in fixing the price to be paid for Crown timber.

**Sustained Yield:** The growth of timber that a forest can produce and that can be cut to achieve a continuous approximate balance between the growth of timber and timber cut.

**Tending:** Generally, any operation carried out for the benefit of a forest crop at any stage of its life, e.g., cleaning, thinning, pruning; typically in an even-aged forest.

**Timber Management Plan:** Written document containing pertinent information and prescriptions by means of which forest policy, aims, and objectives are translated into a continuity of specific treatments on a forest estate for a specified period of years.

**Uneven-aged:** Stands or forests in which trees markedly differ in age.

**Volume:** The amount of wood in a tree, stand, or other specified area, according to some unit of measurement or standard of use.

**Working Group:** An aggregate of stands, including potential forest areas assigned to this category, having the same predominant species, and managed under the same rotation and broad silvicultural system.

**Yield:** The harvest, actual or estimated, howsoever measured, over a given period of time.

## Appendix II - FMU Financial Data

Item	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91
Total Stumpage	1212303	1146556	1311603	1313246	1083398	794295
Silviculture Funding	63648	217484	407591	491798	561743	455603
Other Income	11934	23700	66418	65414	65900	48761
<b>Total Revenues</b>	1287885	1387740	1785612	1870458	1711041	1298659
Programme Expenditures	949939	1171093	1467271	1463835	1294477	1087522
Administrative and Other	76315	100461	294687	398959	353579	435138
<b>Total Expenditures</b>	1026254	1271554	1761958	1862794	1648056	1522660
<b>Retained Income (Cumulative)</b>	*430181	546367	570021	577685	640670	416669

\* Includes carryover from 1983-85 interim agreement.

++ Source: A.F.A. Annual Reports

## Appendix III - List of Field Inspection Sites

Day	Location	Operating Unit	Sites to View
August 19 a.m.	Flight around the Park		Overview of Park
p.m.	Findlayson Township	315-3	<ul style="list-style-type: none"> <li>- Tolerant Hardwood, selection</li> <li>- Harvesting</li> <li>- Western Uplands Hiking Trail</li> <li>- Portage crossings just north of block</li> </ul>
August 20 a.m.	Nightingale Township	359-1	<ul style="list-style-type: none"> <li>- Tolerant Hardwood, selection</li> <li>- Interface of harvesting with heavily used water systems</li> </ul>
p.m.	Clyde Township	374-2	<ul style="list-style-type: none"> <li>- Tolerant Hardwood, selection</li> </ul>
August 21	Redpoll Rd.	141-2	<ul style="list-style-type: none"> <li>- View succession of pine management</li> <li>- Chemical tending results, air blast sprayer</li> </ul>
August 22 a.m.	Flight to Biggar Lake	222-3	<ul style="list-style-type: none"> <li>- Tolerant Hardwood, uniform shelterwood</li> <li>- Hemlock, uniform shelterwood</li> </ul>
p.m.	Sproule Township	327-1	<ul style="list-style-type: none"> <li>- Tolerant Hardwood, selection</li> </ul>
		334-2	<ul style="list-style-type: none"> <li>- Tolerant Hardwood, selection</li> </ul>
August 23	Stratton Township	138-5	<ul style="list-style-type: none"> <li>- White Pine, uniform shelterwood</li> </ul>
	Lake Traverse Rd.		<ul style="list-style-type: none"> <li>- Brushsaw work</li> <li>- Juvenile spacing</li> <li>- Blowdown planting</li> </ul>

## **Appendix IV - Interview List**

### **Algonquin Forestry Authority**

W.G. Brown . . . . . General Manager, Huntsville  
C.M. Corbett . . . . . Chief Forester, Huntsville  
D.W. Barras . . . . . Road Foreman, Pembroke  
B.A. Connelly . . . . . Manager, Operations, Pembroke

T. Doyle assisted us in our review of financial records.

### **Ministry of Natural Resources**

P.J. Berges . . . . . A\Regional Forester, Huntsville  
T.E. Dodds . . . . . A\Deputy Regional Director, Huntsville  
A. Corlett . . . . . Regional Silviculture Specialist, Huntsville  
G.E. Martelle . . . . . Park Superintendent & District Manager, Whitney  
J.T. Kus . . . . . Forest, Fish, and Wildlife Management Supervisor, Whitney  
J. Mihell . . . . . Unit Forester, Whitney  
J. Borrowman . . . . . Interior Supervisor, Whitney  
D. Harper . . . . . Senior Forest Technician, Whitney  
J. Lorbetskie . . . . . Regional Scaling Auditor, Huntsville

### **Other**

W. Swift . . . . . Algonquin Outfitters, Oxtongue  
J. and R. McRae . . . . . McRae Lumber Co. Ltd., Whitney  
G. Kroes . . . . . Tembec Inc., Huntsville

## **Appendix V - Interview Guide**

### **A. Overview**

1. In your view, has the Agreement worked well?  
Have problems arisen?  
If so, have solutions been tried? Did they work?
2. Have MNR/A.F.A. objectives been met?
  - a) as set out in the original Agreement, background documents
  - b) as standards and goals evolved.
3. In particular, have the practices and activities under the Agreement supported broader A.F.A. and MNR goals such as:
  - community development
  - forest stewardship
  - sustainable development
  - protection of the natural heritage and biological features of the area
4. Does the Agreement meet both the letter and spirit of the Algonquin Park Master Plan?

### **B. Forest Management**

1. Are forest management practices consistent with/ complementary to those used by MNR?  
Should they be?  
Where do they differ?  
Should they differ?
2. Are the best/most appropriate management techniques being used?  
Have changes been made during the last five years and if so why, and with what results?
3. In particular, how would you evaluate the job done in the following areas?--
  - overall level of harvest, mix of harvest
  - logging, site impact
  - utilization
  - marking
  - appropriateness of cut technique
  - regeneration
  - tending
4. Has the forest been improved over the course of the Agreement?

## **C. Integrated Resource Management**

1. Have forest management practices achieved the best results with respect to non-timber uses?  
Have problems been encountered? Are there conflicts?
2. How would you assess the impact of current forest management practices with respect to the following?--
  - recreational uses
  - park aesthetics
  - site ecology
  - wildlife habitat
  - water/aquatic effects

## **D. Process**

1. Has the planning process gone smoothly?  
Have you encountered any difficulties in meeting standards/deadlines?
2. Does the planning process allow for appropriate input from interest groups?  
How well is the public review process working?
3. How well has the audit process worked?
4. Is the planning process appropriate for supporting Park objectives?

## **E. Finances**

1. Are revenues adequate to meet the objectives of the Agreement?  
Do revenues allow the desired level of forest management? If not, why not? What steps, if any, have been taken to remedy any problems and with what results?
2. Where have costs increased under the Agreement?  
e.g. does integrated resource management and the public input process generate extra costs (time, staffing, \$)?
3. Could the money be better spent? How?

## **F. Innovation**

1. In your view has the A.F.A. gone beyond the requirements of the FMU Agreement in any way?

Some interviews deviated from the Interview Guide when it was deemed appropriate.



# **ACTION PLAN FOR THE FIVE-YEAR REVIEW OF THE FOREST MANAGEMENT UNDERTAKING AGREEMENT WITH THE ALGONQUIN FORESTRY AUTHORITY**

This action plan addresses the recommendations in the first Five-Year Review of the Forest Management Undertaking Agreement with the Algonquin Forestry Authority (A.F.A.). This action plan was produced through discussions between the A.F.A. and Ministry staff. The recommendations are restated sequentially and they will have the following outline discussion:

- (a) Action required
- (b) Who is responsible
- (c) Completion date

The majority of the recommendations will be implemented through the re-negotiation of an amended FMU agreement between MNR and A.F.A.

## **RECOMMENDATION #1**

That the MNR and A.F.A. eliminate unnecessary management plan reporting by using the Timber Management Plan reporting process exclusively, with the retention of the February 15th advance budgeting estimate.

**ACTION:** With the new Timber Management Planning process and its reporting documentation, future report requirements will be those generated by this process to avoid any duplication.

Budget estimates on February 15 (14 months ahead of fiscal year) will not be required but estimates for the next fiscal year will accompany the Annual Work Schedule submission time frame. These estimates will detail forest management funds required to accomplish work at different operational levels.

Expenditure information during the fiscal year will be required at the 3/9, 6/6 and 9/3.

**WHO IS RESPONSIBLE:** A.F.A. will undertake implementation in the 1992/93 fiscal year.

**COMPLETION DATE:** Implementation will occur in 1992/93 with amended text in the revised Forest Management Undertaking (FMU).

## **RECOMMENDATION #2**

That the role and authority of the MNR administrative levels and monitoring, implementation, and reporting relationships be clearly identified in the FMU.

**ACTION:** That a clear and consistent definition of the administration, monitoring and implementation roles between the A.F.A. and MNR occur within the amended FMU and are consistent with other appropriate documents.

**WHO IS RESPONSIBLE:** Both MNR and A.F.A. are responsible for the production and implementation of the amended FMU.

**COMPLETION DATE:** Will form part of the amended FMU and completion to occur nine months after the approval of this Action Plan.

## **RECOMMENDATION #3**

That the AFA enhance their accounting system by recording total (direct and indirect) project costs under forest management activity categories similar to those employed by the Ministry.

**ACTION:** The current A.F.A. accounting system records all costs within their financial system. These costs can be aggregated in a variety of ways. The A.F.A. and MNR will jointly examine and analyze the system. The review will determine if the direct and indirect costs of forest management activities can be utilized for cost comparisons. The system must be agreed upon prior to entering negotiations in relation to Recommendation #4.

General comments on the accounting system will form part of the amended FMU agreement.

**WHO IS RESPONSIBLE:** Both MNR and A.F.A. are responsible for the implementation of this recommendation, with A.F.A. initiating the lead.

**COMPLETION DATE:** To be completed within six months after approval of the Action Plan.

## **RECOMMENDATION #4**

That the Minister and the Algonquin Forestry Authority incorporate a formal rate schedule for silvicultural work directly into the FMU or in the Annual Work Schedules under the Agreement.

**ACTION:** Through examination of Provincial, FMA's, Regional and local silvicultural rates for various forest management activities, the A.F.A. and MNR will establish a negotiated rate schedule to be included in the amended FMU.

**WHO IS RESPONSIBLE:** Both the A.F.A. and MNR are responsible for the implementation of this recommendation, with MNR taking the lead.

**COMPLETION DATE:** To be completed within six months after the approval of this Action Plan.

## **RECOMMENDATION #5**

That silviculture be included in the "core programme" for the extended Agreement and as such be eligible for funding from all specified sources.

**ACTION:** The full range of Forest Management Undertaking activities will be incorporated in the amended FMU with discussion on priorities during the negotiations between MNR and A.F.A. Annual priorities for funding will be negotiated based on the Annual Work Schedule and approved Timber Management Plan.

**WHO IS RESPONSIBLE:** This recommendation will be a joint discussion between MNR and A.F.A. during the amendments of the FMU.

**COMPLETION DATE:** Within nine months of the Action Plan approval, a complete amended FMU will be finalized.

## **RECOMMENDATION #6**

That MNR and A.F.A. examine ways to increase silvicultural levels under the FMU.

**ACTION:** Options for enhancing the levels of funding available for silvicultural activities will be considered during the negotiations of an amended FMU agreement. A clause for continuous examination to increase silvicultural funding will appear in the amended agreement.

**WHO IS RESPONSIBLE:** Both MNR and A.F.A. are responsible for the implementation of this recommendation.

**COMPLETION DATE:** Completion will be within nine months after the approval of the Action Plan, since it is an integral part of the amended FMU.

## **RECOMMENDATION #7**

That road use patterns outside the Park be examined by MNR, A.F.A., other ministries and agencies, and local municipalities with a view to sharing costs more equitably. The new formula would be reflected in the FMU.

**ACTION:** Initial investigation between MNR, A.F.A., other ministries and local municipalities on road use patterns and sharing of potential costs has been undertaken. If a new road formula is developed, this will be incorporated into the amended FMU agreement.

**WHO IS RESPONSIBLE:** Both MNR and A.F.A. are jointly responsible for implementation of this recommendation.

**COMPLETION DATE:** Within six months after the approval of the Action Plan and to be incorporated into the amended FMU agreement.

## **RECOMMENDATION #8**

That MNR and A.F.A. make it a priority to agree on the status and treatment of the Barren and Scattered and recent cutover area.

**PREAMBLE:** The A.F.A. and MNR were to jointly survey all lands (except tolerant hardwoods) within the recreation-utilization zone which were harvested between 1968-1978 and those areas classified by FRI as barren and scattered.

The parties agreed that the A.F.A. would survey lands identified as barren and scattered in the inventory and the MNR the 1968-1978 cutover. A preliminary report submitted by the A.F.A. prior to March 31, 1987, required revisions which were done. Funding constraints delayed completion of MNR portion. The survey is now complete.

To date, aspects of these surveys have been used to update the Forest Resources inventory and help identify areas that required silvicultural treatment. However, a comprehensive plan of remedial action was never jointly developed.

**ACTION:** The status of regeneration will form an integral component of the Pine Tactical Plan which will contain silvicultural treatments by site and enhance long-term silvicultural planning.

To jointly agree on the status and treatment of the barren and scattered and 1968-1978 cutovers will be a formal condition within the ground rules of the amended FMU. This recommendation is an outstanding issue from the 1985-1990 FMU.

**WHO IS RESPONSIBLE:** Both MNR and A.F.A. will jointly implement this recommendation.

**COMPLETION DATE:** Since this recommendation is an integral component of the Pine Tactical Plan, it will be implemented by March 31, 1995, as per Recommendation #16. Discussion of this plan appears in detail under Recommendation #16.

## **RECOMMENDATION #9**

That the next five-year review commence not later than ninety days following March 31, 1995.

**ACTION:** Forest Resources Branch will lead and commence in securing review team members, terms of reference for review team and review schedule, etc. six months prior to March 31, 1995, as they are responsible for FMA reviews in cooperation with regions and districts. The review team will be secured by March 1, 1995. The timing of the next review will be included in the amended FMU.

**WHO IS RESPONSIBLE:** MNR staff (Main Office, Region, District) and A.F.A. will be responsible for the implementation of this recommendation, with MNR (Main Office) taking the lead.

**COMPLETION DATE:** The next five-year review will commence not later than ninety days following March 31, 1995.

## **RECOMMENDATION #10**

That the A.F.A. commit to ensuring that the staff and contract markers regularly attend Ministry marking courses and that the A.F.A. commit to having its staff and contract markers meet the Ministry's professional standards for marking.

**PREAMBLE:** The A.F.A. have been involved in past and present resource management courses and workshops.

**ACTION:** A.F.A. markers and staff will formally participate and take advantage of resource management training offered by MNR and other agencies to maintain and improve their management skills.

If and when MNR requires certification of tree markers, the A.F.A. will meet this qualification.

The amended FMU will outline the commitments for ongoing resource management training.

**WHO IS RESPONSIBLE:** A.F.A. in cooperation with MNR will implement this recommendation.

**COMPLETION DATE:** The recommendation will be implemented April 1, 1992, both MNR and A.F.A. are committed to continuous resource management training.

### **RECOMMENDATION #11**

That over the next five years, the MNR reduce its auditing of marking and replace the auditing of every block with spot checks. As the MNR auditing function is scaled down, the A.F.A. be required to keep formal records of its own audits and to share them with MNR.

**PREAMBLE:** As stated in the FMU Agreement, the MNR have the formal role of auditing and monitoring with the appropriate documentation. A.F.A. undertakes supervisory work inspections which are not formal audits.

**ACTION:** Since the A.F.A. are responsible for the forest management within Algonquin Park, the formal documentation by the A.F.A. of field activities will be negotiated in the amended FMU agreement, and implementation to occur on approval of the amended FMU.

**WHO IS RESPONSIBLE:** A.F.A. and MNR will jointly implement this recommendation, with A.F.A. initiating the lead role.

**COMPLETION DATE:** Formal implementation of this recommendation will occur once the amended FMU is negotiated and approval given to Action Plan and FMU.

### **RECOMMENDATION #12**

That the FMU include a provision for continuous upgrading of marking procedures as they evolve.

**PREAMBLE:** A.F.A. have adjusted marking standards when ample discussion and review of the issue was afforded and when an adequate implementation period was negotiated.

**ACTION:** Ensure that the amended FMU reflects not only a provision for continuous upgrading of marking procedures as they evolve, but for all forest resource management principles. The amended FMU agreement will describe a process for implementing change.

**WHO IS RESPONSIBLE:** A.F.A. and MNR will jointly implement this recommendation.

**COMPLETION DATE:** Within nine months after the approval of the Action Plan, since this forms part of the amended text for the next FMU.

### **RECOMMENDATION #13**

That the cost of undertaking a complete programme of silvicultural activity, including "full" hardwood stand improvement and pine regeneration, be determined as well as the cost of intermediate levels of activity.

**ACTION:** A review of the silvicultural activity and associated costs will be part of the preparations for the next Timber Management Plan. The Pine Tactical Plan will be developed as one part of those preparations.

Funding rates for various activities will be related to the silvicultural rate schedule and as per Recommendation #4.

**WHO IS RESPONSIBLE:** The implementation of this recommendation is a joint venture between the A.F.A. and MNR, with A.F.A. taking the lead.

**COMPLETION DATE:** Initial work has commenced, but complete package to occur by March 31, 1995, in conjunction with Pine Tactical Plan and new Timber Management Plan.

### **RECOMMENDATION #14**

That partial stand improvement activities be allowed where appropriate.

**PREAMBLE:** During the initial phases of additional silvicultural funding in the Park, there was regional direction to implement these on a priority basis. Local staff utilized the funds to concentrate their silvicultural efforts in the SW corner of the Park. Today, forest management efforts by both the A.F.A. and MNR are towards a balanced program within funding and priority limitations.

**ACTION:** Different levels of silvicultural accomplishment can be achieved by varying the intensity of treatment on a given hectare. While a complete treatment is the target, limiting factors such as funding, access and markets often prevent this target to be achieved all the time. Therefore, where other values, markets, site and stand conditions warrant, varying degrees of intensity will be examined with the intent of achieving a mix of intensively and extensively treatment of sites.

**WHO IS RESPONSIBLE:** The implementation of this recommendation is a joint venture between the AFA and MNR.

**COMPLETION DATE:** Both MNR and A.F.A. have agreed to adopt this recommendation and will implement in the 1992/93 season.

### **RECOMMENDATION #15**

Recognizing the importance of hemlock to wildlife management, biodiversity, and aesthetics and given the current lack of recruitment in the younger age classes, that a targeted management strategy be developed for maintaining hemlock.

**PREAMBLE:** Previous resource management documents such as the Forest Management Plan 1980-2000, Timber Management Plan 1990-2010, and the Park Master Plan recognized the importance of hemlock. These documents made provisions for the maintenance and enhancement of hemlock.

In addition, a MNR sponsored research project has commenced through a joint effort of the District, the Central Ontario Technology Development Unit and Queen's University on the status of Hemlock in Algonquin Park.

**ACTION:** The revised Algonquin Park Master Plan, to be completed in draft this year, will contain the Parks Council recommendation that a "Vegetation Management Strategy" will be developed and implementation begun by January 1, 1995. Input into the strategy development will be solicited from client groups such as the A.F.A., etc. As per the resource planning hierarchy, the new TMP for Algonquin Park will reflect the direction of the Algonquin Park Master Plan and the Vegetation Management Strategy. Implementation of this recommendation will occur at the next TMP with appropriate strategies, operational activities, etc., to accomplish the hemlock maintenance and enhancement.

Appropriate wording will be in the amended FMU to reflect this recommendation.

**WHO IS RESPONSIBLE:** This recommendation is a joint responsibility of the A.F.A. and MNR.

**COMPLETION DATE:** Initial work has begun and implementation will occur after the production of the Vegetation Management Strategy and incorporation in the next Timber Management Plan for Algonquin Park (April 1, 1995).

### **RECOMMENDATION #16**

That all pine areas planned for harvest should be inspected prior to the harvest and plans drawn up for appropriate silviculture activities and that MNR and A.F.A. meet their recent commitment to cooperatively devise a tactical plan for management in the pine working groups.

**PREAMBLE:** All allocated areas are surveyed by A.F.A. prior to harvest and examined prior to silvicultural projects being undertaken.

**ACTION:** All pine areas will be inspected and evaluated prior to harvest and other silvicultural activities. The range of methods to be employed will be determined between MNR and A.F.A. and outlined in general terms within the amended FMU. The silvicultural plans of action will form an integral part of the Pine Tactical Plan, TMP and AWS.

The intent of creating a Pine Tactical Plan is to tailor a silvicultural treatment package to the site. The methodology of inspection and factors being assessed will be incorporated in the Plan. The Plan will enhance long-term silvicultural planning for these valuable species and assist in making the best use of available silvicultural funds.

It will be jointly developed by the A.F.A. and MNR in two separate phases. Phase I will be the outline and framework of the Pine Tactical Plan. Phase II will be the initial production of the Pine Tactical Plan containing strategic directions to be incorporated in the next TMP.

The amended FMU will contain appropriate discussion on the Pine Tactical Plan.

**WHO IS RESPONSIBLE:** The implementation of this recommendation is a cooperative venture between MNR and AFA.

**COMPLETION DATE:** Both Phase I of the Pine Tactical Plan and discussion on inspections will be completed within six months after the approval of the Action Plan as part of the amended FMU.

Phase II, the initial Pine Tactical Plan, to be completed by December 31, 1994, for incorporation in the next TMP due April 1, 1995.

## **RECOMMENDATION #17**

That the MNR and A.F.A. jointly develop and implement a system for surveying and tracking regeneration for all working groups. The system should be designed so that regeneration is surveyed in a timely manner and be accessible to both MNR and A.F.A.

Discussion in relation to tolerant hardwoods (page 24-25) within the consultant's report, requires several clarification statements. These are summarized below:

**PREAMBLE:** Since the mid 1950's within the old Algonquin Region, tolerant hardwood growth and yield plots have been an active part of the forest program. Agencies such as the Ontario Forest Research Institute, A.F.A., COTDU and field staff have developed many partnerships to undertake the accomplishment of these valuable activities.

Formalized stand assessments in the tolerant hardwood working group occurs at different levels within the Great Lakes/St. Lawrence Forest Region and is primarily a function of availability of funds.

Due to the tremendous regeneration success through partial harvesting systems in tolerant hardwoods, the regeneration aspects of assessment work are not the priority item rather the site and stand evaluations.

**ACTION:** The A.F.A. have a system in place for surveying and tracking information. MNR and the A.F.A. will jointly examine this system to ensure that stand information is recorded, tracked and used in conjunction with follow-up silvicultural treatments. This information will be shared by both parties. The surveying and tracking system will form part of the amended FMU agreement.

**WHO IS RESPONSIBLE:** This recommendation will involve a joint effort by MNR and A.F.A. to accomplish, with A.F.A. taking the lead role.

**COMPLETION DATE:** To be completed by March 31, 1993.

### **RECOMMENDATION #18**

That the Minister extend the Forest Management Undertaking Agreement for a further five-year period to March 31, 2005.

**ACTION:** Prepare a briefing note with the consultant's report and action plan to the Minister requesting the implementation of this recommendation.

**WHO IS RESPONSIBLE:** MNR will implement the process and the Minister is responsible for the actual extension of the FMU.

**COMPLETION DATE:** Briefing note with accompanying documents to be finalized for submission to ADM Operations by March 31, 1992. Once approval has been given at this level, the package will be forwarded to the Minister.

### **OTHER COMMENTS**

A complete set of silvicultural ground rules will be negotiated and prepared for the revised FMU.

**WHO IS RESPONSIBLE:** Both MNR and A.F.A. will be directly involved in the implementation of the above action item.

**COMPLETION DATE:** Will be an integral component of the revised FMU, therefore, completion will occur nine months after the approval of the Action Plan.



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